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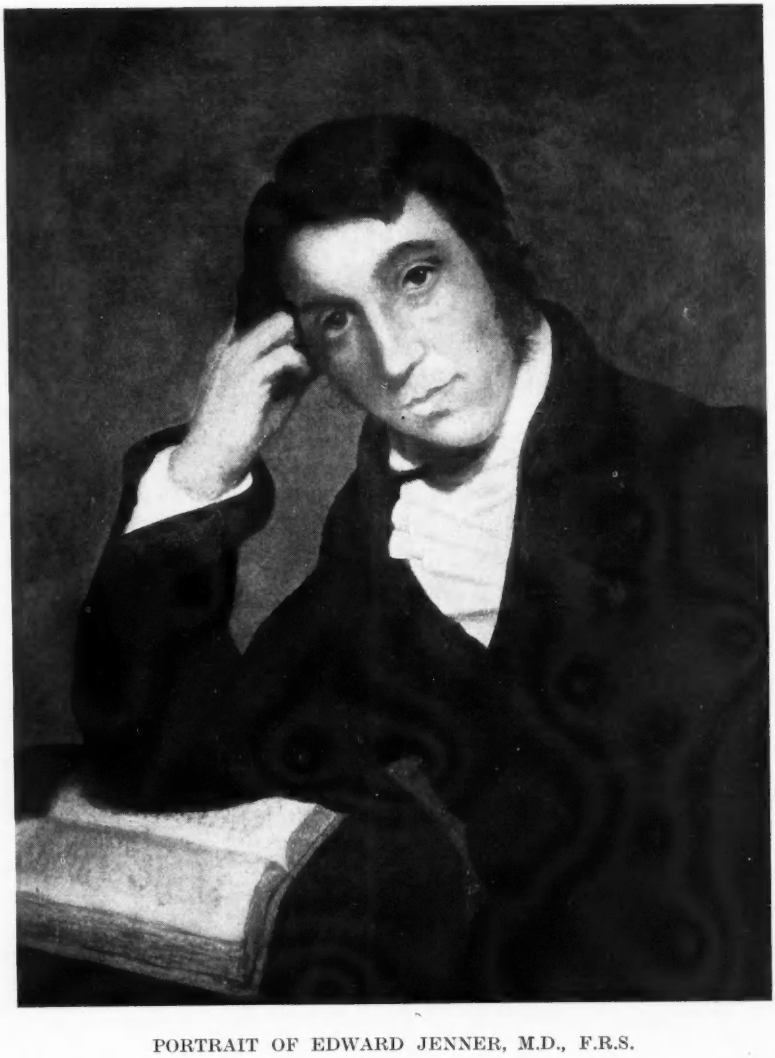

PORTRAIT OF EDWARD JENNER, M.D., F.R.S.

(By unknown artist)—presented by Mrs. Thornton S. Wills to Bristol City Art Gallery.

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[*Frontispiece*

The Bristol Medico-Chirurgical Journal

" Scire est nescire, nisi id me Scire alius sciret."

SPRING, 1948.

EDWARD JENNER

The Presidential Address, delivered on Wednesday, 8th October, 1947, at the opening of the Sixty-ninth Session of the Bristol Medico-Chirurgical Society.

BY

T. MILLING, M.B., Ch.B.

JENNER was born in 1749 in the vicarage, being the third son of the Rev. Stephen Jenner, vicar of Berkeley. His father died when he was five years old and Edward was brought up by his elder brother Stephen, who succeeded his father as vicar. Jenner's mother was " the daughter of Rev. Henry Head of an ancient and respectable family in Berkshire." He formerly held the living of Berkeley and was a prebendary of Bristol Cathedral.

The old vicarage is no longer in existence. Jenner bought the house known as " The Chantry," and it was here he lived and died. It is now the vicarage. In the grounds, there still stands the little hut where Jenner used to vaccinate the children of the neighbourhood gratuitously. He called it the Temple of Vaccina. Many of the trees are old enough to have been planted by him and the room where he died is still pointed out.

Jenner went to school at Wotton-under-Edge and later at Cirencester. We are told that he early evinced an interest in geology and natural history. At thirteen, he was sent as an apprentice to Daniel Ludlow, a surgeon living at Sodbury. He stayed with him for six years and then went, as a house pupil, to the great surgeon and pioneer John Hunter in London. His name is entered as a student at St. George's Hospital in 1770.

It was singularly fortunate for Jenner that he should meet John

Hunter. They were mutually attracted. Hunter was his senior by twenty-one years, but the common bond of interest in biology cemented a friendship which lasted as long as Hunter lived.

They kept up a life-long correspondence and many are the strange requests for natural history specimens which Hunter, in his rather crude English, made from Jenner when he had settled in a country practice.

Jenner did his work so well and impressed his master so much with his ability that, when Captain Cook returned from his first voyage to the Southern Hemisphere, Hunter recommended Jenner for the job of arranging and preparing the mass of biological material which had been collected on the voyage. This, in turn, led to his being offered the post of biologist to Cook's second voyage. This tempting offer was declined by Jenner. Hunter's marked appreciation of Jenner's attainments was again shown when he formed the plan of a school of natural history and human and comparative anatomy—the first of its kind in this country—and asked him to come and be his partner in the undertaking. Whatever may have been the reason, after two years as Hunter's pupil he determined to return to the simple, if strenuous life of a country doctor in Berkeley. He loved the countryside and Berkeley was specially attractive to him—the trees, the birds, the flowers, the opportunities to satisfy his interest in geology, but more particularly the warm-hearted country folk with whom he felt so much at home.

In the treatment of many diseases, his views, founded on the improved anatomy and physiology he had learned from Hunter and his own acute observation, were far in advance of his time. But it was chiefly by his sympathetic qualities of heart that Jenner most of all obtained and maintained the influence he possessed. He is described by his friend Edward Gardner, who had been a schoolfellow of Chatterton, about this time as follows :—" His height was rather under the middle size, his person was robust, but active and well formed. In his dress he was particularly neat, and everything about him shewed the man intent and serious, and well prepared to meet the duties of his calling. When I first saw him, it was on Frampton Green. I was somewhat his junior in years and had heard so much of Mr. Jenner of Berkeley that I had no small curiosity to see him. He was dressed in a blue coat and yellow buttons, buckskins, well-polished jockey boots, with handsome silver spurs, and he carried a smart whip with a silver handle. His hair, after the fashion of the times, was done up in a club and he wore a broad-brimmed hat. We were introduced on that occasion. . . ." Sir D'Arcy Power adds that he usually rode a white horse and altogether made an attractive, smart and cheery figure.

During this part of his career when he was actively engaged in his practice he found time to conduct many biological experiments,

some of which were suggested by Hunter. In fact, Hunter rarely wrote without some reference to this work. Jenner had occasion to send Hunter patients from time to time for his opinion and the report on these is accompanied by requests for biological material or suggestions of experiments which might help to solve some biological problem. He studied the subjects of the torpidity of hibernating animals and migration of birds : he introduced an improved method of purifying tartar emetic and conducted experiments on the effect of animal manure on vegetation. He shewed "it was first the robin, not the lark, as has been generally imagined, as soon as twilight has drawn the imperceptible line between night and day, who begins his lonely song."

Jenner anticipated Darwin in his observations on the earthworm —he said that the earthworms, particularly about the time of the vernal equinox, were much under and along the surface of our moist meadowland and wherever they move they leave a train of mucus which becomes manure to the plants. In this respect, they act as the slug does in furnishing material for food for the vegetable kingdom, and under the surface they break the stiff clods in pieces and finally aerate the soil.

Jenner managed to get a whale for Hunter and had it sent to London. In the days of stage-coaches this would have been impossible by land and its condition would have been rather fruity by the time it reached London, so I presume it was sent by sea in a coastal trader.

His original researches into the habits of the cuckoo were presented by Hunter, on his behalf, to the Royal Society and though they were not generally accepted by naturalists at the time, their accuracy has since been amply confirmed. He shewed that the cuckoo laid many eggs during her short stay in this country, sometimes in the nest of one bird and sometimes in that of another, the egg of the host being imitated in each case except that of the hedgesparrow. The hedgesparrow is apparently not at all disturbed at finding an odd egg in its nest and hatches all alike. It was known that the young cuckoo alone survived in the nest of its host and it was thought that the adult cuckoo removed the eggs of the host, but it was Jenner who proved that was not so. He shewed that the young cuckoo, from two–twelve days old, by means of a peculiar formation of its back, was able to hoist the hedgesparrow's eggs out of the nest, using its wing-tips to lever itself up to the top of the nest : or, in the event of the hedgesparrow's eggs being hatched, the more-rapidly-growing young cuckoo contrived to get the babies on to its back and heave them out of the nest. Photography has proved Jenner to be correct in this observation. He was interested, too, in the times of arrival and departure of the adult cuckoos and the time of the first emigration of the young cuckoo.

It was shortly after this paper on the cuckoo that Jenner was elected a Fellow of the Royal Society. "It has ever been looked on," says Baron, referring to the paper, "as a specimen of accurate and successful investigation . . . affording to every subsequent naturalist a plain, convincing and instructive account of a subject which up to that time had been involved in the greatest obscurity." This investigation of the habits of the cuckoo is Jenner's chief claim to fame as a naturalist, but just before his death he was preparing a paper for the Royal Society on the migration of birds, which was published by Rev. C. C. Jenner in the November following Jenner's death.

In 1778 he had an unhappy love affair. The lady's name is not mentioned, but apparently she turned poor Jenner down, and as he was a man of deep feeling and deadly in earnest he was correspondingly depressed and wounded in spirit at her refusal.

It was ten years later that he married Catherine Kingscote, a lady of one of the most ancient and respectable families in Gloucester. She was always a delicate woman, but devoutly religious, and Jenner found in her counsel and sympathy solace in many of the most trying scenes of his future life. His eldest son, Edward, was born on the 24th of January, 1789. John Hunter was his godfather.

He had three children: Edward, born 1789, died 1810; Catherine, married 1822, died August 5th, 1833; Robert Fitzharding Jenner survived his father.

His domestic life was very happy and the peace and quiet of Berkeley suited him well and he had many and influential friends, including the scion of the house of Berkeley. He was a cheerful and sociable fellow, says Hale White, popular with his fellow doctors and with his patients. He frequently spent days in the house of particular friends, especially if any of them were ill, carrying on his practice from his temporary headquarters.

Educated people loved his conversation and he used to encourage those whom he liked to ride with him on his rounds. When he left a patient's house, often some of the family would ask permission to ride home with him even if it was midnight. His range of conversation was vast; he was often witty, was fond of epigram and was no mean poet; also he could sing and play the violin and flute.

He liked to form parties for outings, and Barrow Hill was one of his favourite haunts, from which place there is a magnificent view of the Forest of Dean and Bristol Channel. He particularly liked to watch the sunset from this spot. I had great difficulty in locating it, but the journey was well worth while and I can confirm Jenner's opinion of its beauty—the great sweep of the Severn which almost encircles the hill from Sharpness with its docks on the left, round past Newnham and Westbury, on the opposite bank: and still further to the right, I could see, on the near bank, an outcrop of geological strata (similar to that at Aust) where Jenner used to collect fossils.

Now all his study of biological problems was closely allied to his work as a medical man and was carried out in conjunction with his daily work as a doctor. In fact, his approach to medicine was that of a scientist always enquiring into the why and the wherefore of things. He used to examine the bodies of animals slaughtered for food or which had died of disease, and he took every opportunity to perform post-mortem examinations on those of his patients who died. His conclusions were not always correct—subsequent knowledge has proved him to have been wrong. For instance, he believed that tubercles in the lungs were but a stage in the development of hydatid cysts.

But he made some remarkably good shots. He was the first man ever to describe disease of the coronary arteries and to associate it with anginal pain. He communicated his observations to the Medico-convivial Society which met at Rodborough. This paper and others fell into the hands of some member of the Society and he could never recover them.

Fortunately, his claim to priority in the discovery of this disease is substantiated by his old schoolfellow, Dr. Parry of Bath, who, in his "Inquiry into the Symptoms and causes of Syncope Anginosa," says: "To some questions which I have lately put to that excellent pathologist (Jenner), as to the series of the observations which produced that opinion, I have received the following answer:

"The first case I ever saw of angina pectoris was that in the year 1772, published by Dr. Heberden, with Mr. Hunter's dissection. There, I can almost positively say, the coronary arteries of the heart were not examined. Another case of a Mr. Carter, at Dursley, fell under my care. In that, after having examined the more important parts of the heart without finding anything by means of which I could account either for his sudden death or the symptoms preceding it, I was making a transverse section of the heart pretty near its base when my knife struck against something so hard and gritty as to notch it. I well remember looking up to the ceiling, which was old and crumbling, conceiving that some plaster had fallen down. But, on a further scrutiny, the real cause appeared; the coronary arteries were become bony canals. Then I began a little to suspect. Soon afterwards, Mr. Paytherus met with a case. Previously to our examination of the body, I offered him a wager that we should find the coronary arteries ossified. This, however, proved not to be exactly true; but the coats of the arteries were hard, and a sort of cartilaginous canal was formed within the cavity of each artery, and there attached, so, however, as to be separable as easily as the finger from a tight glove. We then concluded that malorganisation of these vessels was the cause of the disease.

"At this very time my valued friend, Mr. John Hunter, began to have symptoms of angina pectoris strongly marked upon him; and this circumstance prevented any publication of my ideas, as it must have brought on an unpleasant conference between Mr. Hunter and me. I mentioned both to Mr. Cline and Mr. Home my notions of the matter

at one of Mr. Hunter's Sunday-night meetings, but they did not seem to think much of them. When, however, Mr. Hunter died, Mr. Home very candidly wrote to me immediately after the dissection to tell me I was right.

" The appearance in Mr. Bellamy's case gave me the idea that the disease arose from a determination to the vasa vasorum and that the concretions were deposits from the coagulable lymph or other fluids which had oozed out on the internal surface of the artery."

Jenner also drew attention to disease of the heart associated with rheumatic fever and was thus a pioneer in this field of pathology. He was at least suspicious that pulmonary tuberculosis was an infectious disease and was, in this respect, fifty years in advance of general medical knowledge at that time. But, of course, it was his discovery of vaccination which made him famous all over the world as the greatest benefactor, till then, of the human race, and famous for all time as the pioneer of preventive inoculation against disease. Out of Jenner's work has grown the science of Bacteriology and Pasteur, born a month before Jenner's death, most generously declared that to Jenner should be given the credit of the discovery of the attenuated virus. It was at Pasteur's request that the name " vaccine " instead of some new name was given generally to matter introduced in preventive inoculation even though the cow has now nothing to do with it. " I have ", said Pasteur, " given to the term vaccination an extension which Science, I hope, will accept as a just homage to the immense service rendered by one of the greatest of Englishmen—Edward Jenner. How great to me is the happiness to be able to honour his immortal name in this noble and hospitable city of London."

Jenner was interested in the subject of Cowpox from the earliest days of his medical career. When the subject of smallpox was mentioned at Dr. Ludlow's in Sodbury, he heard a woman say that she could not take that disease because she had had cowpox. He mentioned this local tradition to John Hunter when he went to London, but that worthy man apparently put little on it though he quoted it in his lectures to students.

Jenner's attention was further drawn to the subject when he began general practice in Berkeley by observing that in performing the customary inoculation with variolous material, some people did not take the infection and that these were the very people who had had cowpox. He used to discuss the subject with his colleagues in the medical societies at Rodborough and Alveston. They, of course, were well aware of the local tradition but considered it little more than the gossip of old women. They said that they knew of many cases of smallpox occurring in those who had had cowpox. Jenner knew this to be true, but he did not let the matter rest there. He wanted to know why it should be so. He discovered first that what was referred to as cowpox by the local inhabitants was not always

one and the same thing—other vesicles and ulcerations occurred on the cows' udders besides true cowpox and all alike were called cowpox. He learnt by careful observation to distinguish the true from the spurious cowpox. But, for his discomfiture, he discovered that even those who were infected with true cowpox sometimes developed smallpox subsequently and his next discovery was that it was only at a certain stage of vesicle that protection could be acquired. When the vesicle has become purulent only septic organisms are transmitted and though a vesicle may develop, the person is not protected from smallpox.

These investigations took a long time but he was now in a position to put the knowledge which he had acquired to the test of experiment. He says himself: ". . . During the investigation of the casual cowpox, I was struck with the idea that it might be practical to propagate the disease by inoculation after the manner of smallpox, first from the cow, and finally from one human being to another. I anxiously waited some time for an opportunity of putting this theory to the test. At length the period arrived, and the first experiment was made upon a lad of the name of Phipps, in whose arm a little vaccine virus was inserted, taken from the hand of a young woman (Sarah Nelmes) who had accidentally been infected by a cow. Notwithstanding the resemblance which the pustule thus excited on the boy's arm bore to variolous inoculation, yet as the indisposition attending it was barely perceptible I could scarcely persuade myself the patient was secure from smallpox. However, on his being inoculated some months afterwards, it was proved that he was secure. This case inspired me with confidence; and as soon as I could again furnish myself with virus from the cow, I made an arrangement for a series of inoculations. A number of children were inoculated in succession, one from the other; after several months had elapsed, they were exposed to the infection of smallpox —some by inoculation, others by variolous effluvia, and some in both ways, but they all resisted it. The result of these trials gradually led me into a wider field of experiment, which I went over not only with great attention, but with painful solicitude."

Jenner believed that cowpox and smallpox were one and the same disease, that cowpox was derived from a disease affecting the heels of horses, known as "the grease"; which, whether casually or by vaccination, gave the same protection from smallpox as either an attack of smallpox or inoculation with smallpox material—no more and no less; when, as occasionally happened, a person who had been vaccinated subsequently developed smallpox, he pointed out that the same applied to inoculation with variolous material and that second attacks of smallpox were not unknown—he did not recognize that the beneficial effects of vaccination began to wear off in time and that there was need for re-vaccination. He believed it

was possible to pass the protective cowpox from arm to arm and so to spread its virtues that smallpox might be abolished from all the world by universal adoption of vaccination—he was not aware of the possibility of passing on other diseases at the same time, the realization of which caused the decline of arm-to-arm vaccination.

The remarkable perseverence with which Jenner pursued this subject and the interest he sustained in it all his life constitute one of the most notable things about him. He had indeed followed Hunter's advice: "Don't think, try; be patient, be accurate." The accuracy of his work, and, in the main, the conclusions he drew from it, have stood the test of time.

I do not intend to go into the story of his struggle to disseminate the knowledge of vaccination and its beneficial effects: of how he impoverished himself by neglecting his practice, by frequent visits to London to instruct others in the technique of vaccination, to correct the errors of his early adherents and to combat those who opposed it on principle. All this and much more of his story may be found in Baron's life and in the centenary number of the *B.M.J.*, 1896, and in Hale White's address at the centenary of his death in 1923, before the Royal Society of Medicine.

The last twenty-five years of his life were devoted to pressing home his success, and inspired by the vision of the eradication of smallpox, he devoted himself to spreading the good news. His son Edward's death from pulmonary tuberculosis in 1810 was a sad blow. But a greater blow was the death in 1815 of his wife. The preceding five years he spent with her at Cheltenham. He tended her with loving care, and after her death, stricken with grief, he retired finally to end his days at Berkeley. He was in poor health and was already showing signs of impending dissolution. In 1820 he had a seizure from which, however, he recovered; but he remained ever after sensitive to high-pitched sounds. He says of himself: "I boast of my strength in the morning, but evening comes too soon. Such are the workings of the old partnership of mind and body when the firm has been long established."

He had been made a J.P., and the post-war unemployment and distress kept him fully occupied. The day before his death, he had walked to the neighbouring village of Ham to distribute food to the poor and was apparently in good health. The following morning, however, he was found unconscious on the floor of his study and died the following day of cerebral haemorrhage. Baron, his friend and biographer, attended him in his final illness.

His book, called *An Inquiry into the causes and effect of Variolae Vaccinia, a disease discovered in some of the Western counties of England, particularly Gloucestershire, and known by the name of Cowpox*, consists of only seventy-five pages and is a pattern, even to-day, of what a report on a piece of research should be. He

insisted on the details of his method, neglect of which led to some of the early mistakes—London doctors were not willing to be taught by a country doctor. No Englishman, in private life, has ever attained the world-wide renown that Jenner did. The news of vaccination spread with miraculous rapidity, when one considers the means of transport and communication available in those days, and it was taken up with enthusiasm in Vienna and later in Italy, Germany, France and America. The anniversary of the date of the first vaccination, May 14th, was held as an annual festival in Berlin for many years afterwards; they raised a temple as a memorial to him at Brunn in Austria, Napoleon had a medal struck in his honour in 1804, and at Jenner's request, released several Englishmen detained in France, caught up by the declaration of war.

He received the freedom of many cities and honours and congratulations from many countries. A list of his honours and awards is to be found at the end of Baron's life. Perhaps the most notable of these is that he was made an Associate of the Imperial Institute of France in 1811 and Hon. M.D. of Oxford University in 1813—a distinction very rarely bestowed. But, with all these honours and his association with distinguished people—the Prince of Wales, the Empress of Russia, the King of Prussia—he remained unspoiled, "the singleness of his heart and his genuine modesty graced and adorned his splendid reputation." Such was the man to whom the world was indebted for vaccination; no court or metropolitan physician, no university student, but a country doctor, a man of science and of benevolence whose name is undying.

I wish to acknowledge the help and advice, in the preparation of this address, of Dr. Ashworth Underwood, Wellcome Historical Medical Museum; Mr. A. E. S. Roberts, Bristol Medico-Chirurgical Society Library.

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THE DIAGNOSTIC WORK OF A SURGICAL THORACIC UNIT, WITH SPECIAL REFERENCE TO INTRA-THORACIC SUPPURATION AND BRONCHOGENIC CARCINOMA.*

BY

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A SURVEY of the work of Thoracic Units since 1939 reveals an increasing proportion of purely diagnostic work. Of the five thousand cases that have passed through the Unit at Kewstoke and Frenchay since 1942 approximately one half were cases of obscure chest disease referred for investigation, irrespective of whether the ultimate treatment might be operative or non-operative. It is interesting to study the stages by which the diagnostic methods essential to the study of chest diseases have been adopted and modified by the chest surgeon.

Clinical examination.—With increasing experience more and more reliance is placed on auscultation and the other simple methods of examining the chest; secondly, no examination of the chest is complete without a careful examination of the neck and upper abdomen. The thoracic surgeon is in a fortunate position regarding the interpretation of physical signs by virtue of the unique opportunity of correlating clinical findings with the results of the special investigations, about to be outlined, on the relatively vast amount of clinical material that gravitates to a thoracic unit. Only by the full employment of all methods of investigation now available and the integration of the evidence so obtained can accuracy in diagnosis be achieved.

Sputum examination.—All that was taught by the master clinicians of the nineteenth century concerning naked eye appearances of sputum is valid to-day. Sputum culture is being replaced by examination of secretion obtained from the periphery of the lung, either through the bronchoscope, or by other methods to be described presently. Sputum examination for cancer cells has only limited application; the technique is tedious and there are few cases where diagnosis of malignant disease cannot be made by simpler measures less open to misinterpretation.

* An address to the Bristol Division of the British Medical Association on 21st May, 1947.

Endoscopy.—An important event in the history of diagnostic method was the invention of the bronchoscope and oesophagoscope by the throat surgeons, who for many years remained the only clinicians versed in the use of these instruments. But with the advent of pneumonectomy in the treatment of cancer of the lung the chest surgeon needed information upon the possible spread of the growth, which the laryngologist, who saw only the endobronchial side of the neoplasm, was unable to offer. The thoracic surgeon on the other hand, aided by the opportunity of correlating thoracotomy and bronchoscopic findings, has been able to acquire considerable experience in the interpretation of the more subtle endoscopic signs of the spread of the disease towards the mediastinum. The written or verbal report can never convey as much as the vivid impression gained by the operator performing the examination.

Bronchoscopy has contributed much to our knowledge of the pathology of chest disease, especially in relation to pulmonary tuberculosis and hilar lymphadenitis in childhood; the incidence of bronchial ulceration and broncho-stenosis in adults; the pathology of the bronchogenic tumours, especially the benign tumours; the influence of broncho-stenosis in the aetiology of bronchiectasis; the localization of lung abscesses. Bronchoscopy has become a routine step in the investigation of the majority of chest cases, and repeated bronchoscopy may reveal lesions not visible at the first examination. Whenever a lipiodol bronchogram is indicated, so also is bronchoscopy. (Fig. 1.)

Surgery of the oesophagus is advancing rapidly and an increasing number of operations upon this organ are being performed in the thoracic units. Not least of the factors contributing to this progress is the increasing use of the oesophagoscope. Again, it is the more subtle findings that are of the greatest importance. Early carcinoma of the oesophagus can only be discovered on oesophagoscopy; a barium swallow is frequently negative. (Fig. 2.)

Thoracoscopy following the induction of a diagnostic pneumothorax is occasionally of value in the diagnosis of lesions of the pleura and mediastinum.

Paracentesis.—Exploration of the chest with a needle can be of utmost importance. In fact, it provides us with the only positive physical sign of an empyema, pus in the aspirating syringe, but it is a procedure which may lead to the most dire consequences, and should only be undertaken with extreme caution. Tragedies have occurred following the injudicious use of the needle, and ideally, thoracocentesis should never be undertaken until an antero-posterior and lateral X-ray of the chest have been examined. Under no circumstances should any attempt be made to aspirate a lung abscess. The differential diagnosis between a lung abscess and an empyema

or sub-phrenic abscess, which the patient is coughing up through a bronchial fistula, is extremely difficult at times, even with the help of X-rays. Any attempt to needle a sub-phrenic abscess is also to be deprecated, as an empyema usually results. In needling a chest the common mistake of going too low should be avoided, and on no account should air be admitted to the chest through the needle. If pus is found it is inadvisable to inject penicillin until the fluid has been cultured and the diagnosis completed.

Biopsy examination of tissues removed from within the chest is playing an increasingly important role in the diagnosis of intrathoracic disease. There are two methods of obtaining biopsies from the lung itself: the " punch " method, in which material is obtained by aspiration through a wide-bore needle, and the open method where a portion of the rib is resected under local anaesthesia, and the material obtained under direct vision. Of the two, the latter method is probably the safer and more informative. Whenever a collection of pus is drained, a portion of the wall of the abscess is removed for histological examination, which may be the only method of establishing a diagnosis of tuberculosis or actinomycosis. (Fig. 3.)

Exploratory thoracotomy is now established as an essential step in the early diagnosis of carcinoma of the lung, and may be the only method of confirming the diagnosis at a stage when no direct or indirect evidence of malignancy is obtainable on bronchoscopy, when X-ray appearances are equivocal, and abnormal physical signs are entirely absent—the only stage at which the growth may be operable. It is not a severe operation and involves less risk to the patient than an exploratory laparotomy. There is a growing conviction, based on thoracotomy evidence, that cancer of the lung may remain a strictly localized and eminently operable lesion for a considerable time. The method is not quite infallible, but the margin of error is very small. (Fig. 4.)

X-rays.—Chest surgeons should and do interpret their own X-rays. The only rational foundation for X-ray interpretation is the repeated correlation, at every possible opportunity, of radiological appearances with clinical, endoscopic, operative and autopsy findings. The opportunity to see inside more and more chests has led to greater circumspection in some erstwhile popular radiological diagnoses, such as unresolved pneumonia, interlobar effusion, and pulmonary fibrosis. No attempt will be made to discuss X-ray appearances in detail, but four ancillary methods of X-ray examination which are playing an important role in chest diagnosis call for comment.

First, lipiodol bronchography. The surgical treatment of bronchiectasis or a chronic lung abscess by modern methods of lobar

PLATE I

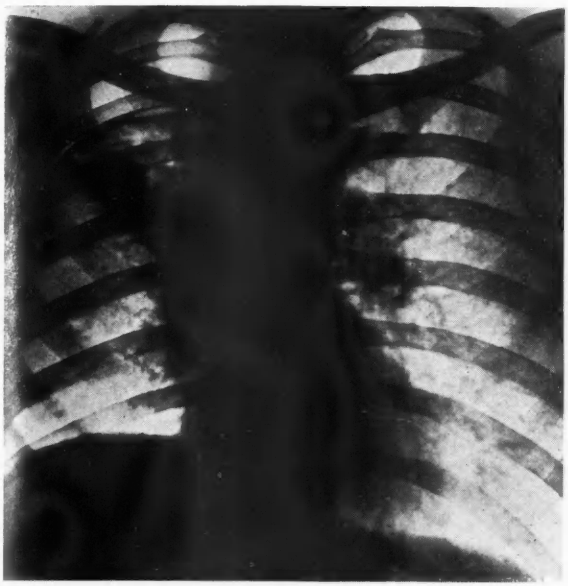

FIG. 1.

Male, aged 31, treated by artificial pneumothorax for pulmonary tuberculosis for three years on account of collapse and cavitation in right upper lobe. Bronchoscopy revealed a bronchial adenoma obstructing the bronchus to this lobe. Total pneumonectomy performed.

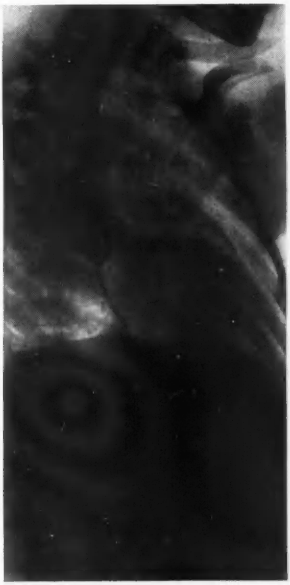

FIG. 2.

Girl, aged 5, treated for hysteria from age of 1, on account of vomiting. Oesophagoscopy revealed an extensive stricture of the lower half of the oesophagus due to peptic ulceration of the mucosa. Partial oesophagectomy and oesophago-gastric anastomosis performed.

PLATE II

FIG. 3.

Female, aged 37, diagnosed as a case of Liebman Sacks disease as a result of lung biopsy which revealed the characteristic histological changes in the branches of the pulmonary artery. Spontaneous recovery.

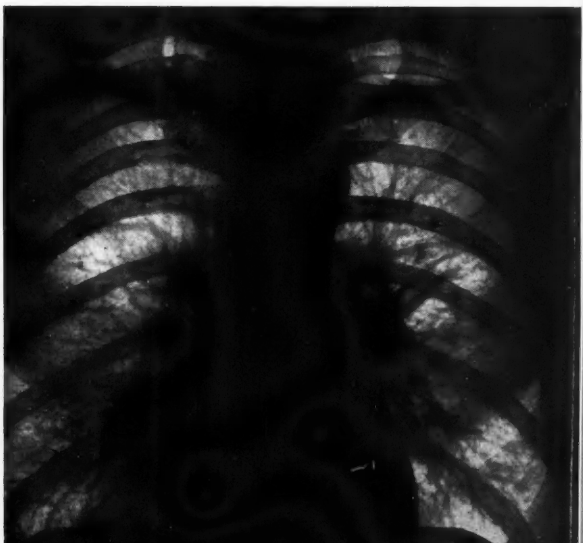

FIG. 4.

Male, aged 54; diagnosis of early carcinoma of left dorsal lobe made on exploratory thoracotomy. The growth was only 1 centimeter in diameter. Total pneumonectomy performed.

PLATE III

FIG. 5.

Female, aged 24, complaining of repeated haemoptysis. Bronchogram revealed segmental bronchiectasis of lingular process of left upper lobe and anterior basic segment of left lower lobe.

FIG. 6.

Male, aged 34, referred as a case of mediastinal tumour and diagnosed as achalasia of the cardia on barium swallow examination. Heller operation performed.

PLATE IV

FIG. 7.

Male, aged 47, bronchogenic carcinoma of the peripheral type discovered on routine mass radiography. Total pneumonectomy performed.

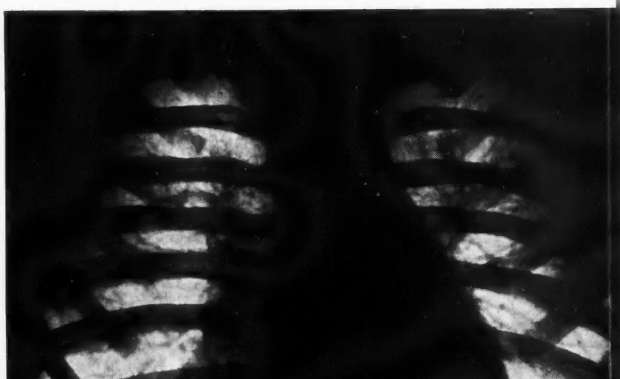

FIG. 8.

Boy, aged 7, with extreme cyanosis. Screening revealed absence of pulsation in pulmonary vessels typical of congenital pulmonary stenosis. Cyanosis relieved by Blalock operation.

or segmental pulmonary resection with removal of all the diseased segments, and only the diseased segments, demands an exact diagnosis of the full anatomical extent of the disease, which can only be supplied by faultless bronchography technique. Slovenly technique has in the past resulted in some important misconceptions concerning the nature and spread of bronchiectasis. (Fig. 5.)

Second, the barium swallow and meal should seldom be omitted in unravelling obscure lesions of the mediastinum. The retrograde meal, with the patient in the head-low position may be the only method of demonstrating hiatus hernias of the diaphragm and growths at the cardiac end of the stomach. (Fig. 6.)

Third, tomography, the most recent refinement in X-ray technique, is destined to play an increasingly important role in the investigation of mediastinal masses, hilar glandular enlargement, tuberculous infiltration, and obscure intra-pulmonary disease. In tuberculosis it bids fair to revolutionize our conception of the incidence of cavitation. Tomographic examination of apparently minimal quiescent lesions in the better lung of cases proposed for thoracoplasty proves that cavitation and active infiltration are present in a large percentage of these so-called quiescent lesions. Some of the less satisfactory results of this operation can now be explained in the light of this additional insight into pulmonary pathology.

The Mass Miniature Radiography Unit is becoming more and more the " receptionist " to the thoracic unit of the future. Not only has thoracic disease been detected and diagnosed before the appearance of symptoms, but in many cases patients who are already aware that all is not well in the chest are first referred to the Thoracic Unit following routine mass radiography, when many months might have elapsed before the patient considered his symptoms sufficiently severe to warrant a visit to his doctor, by which time the disease might have progressed to a hopelessly inoperable stage. (Fig. 7.)

Cancer.—One of the most difficult problems that confronts the thoracic surgeon at the moment is the early diagnosis of cancer of the lung. This disease is diagnosable at an earlier stage and consequently more amenable to successful surgical treatment than any other form of internal malignant disease. It needs only a very small growth to obstruct a branch bronchus, and this bronchial obstruction produces symptoms which, in the majority of cases, are sufficiently severe to take the patient to his doctor. But at this stage the diagnosis can only be made on X-ray examination. Physical signs and the classical textbook symptoms, such as haemoptysis, dyspnoea and loss of weight, may be absent. Urgency is the key-note of the investigation of the patient suspected of having cancer of the lung, and the old policy of " wait and see "

must be abandoned for evermore. In 60 per cent. of the proved cases of carcinoma of the lung seen at this unit the initial symptoms were acute pain in the chest, associated with dry cough and pyrexia, usually diagnosed by the general practitioner as " bronchitis and pleurisy." These symptoms, which probably mark the onset of bronchial obstruction, usually disappear within three weeks, and not until six to nine months later do the classical textbook symptoms begin to appear. A localized " wheeze " in the chest is another important early symptom.

Carcinoma of the lung unassociated with obstruction of the larger or medium bronchi, the peripheral type of growth, may cause symptoms frequently and mistakenly assigned to other causes. Patients with pulmonary osteoarthropathy of the acute type have been treated for rheumatoid arthritis ; others with pain due to direct involvement of the chest wall for arthritis of the shoulder joint, gall stones, or " pleurodynia." Early pleural involvement may cause pain in the absence of X-ray changes, and there is the classic case of the man who was treated successively for pleurodynia, arthritis of the spine, schizophrenia, and tuberculosis because an original X-ray of the chest was said to have shown no abnormality ; two years too late the diagnosis of carcinoma was established by thoracoscopy and pleural biopsy. Most sanatoria have a few cases of carcinoma languishing in their wards and the rare association of carcinoma and tuberculosis almost invariably leads to neglect of the former condition. Hoarseness, swelling of the face due to caval obstruction, and weakness of the hand are sometimes the earliest symptoms caused by the spread of the growth to contiguous structures.

The diagnostic responsibilities of the thoracic unit are increasing. Cardiac surgery is now emerging from the purely experimental phase and is becoming established on a sound clinical basis. The progress already made in the technique of cardiac surgery demands a parallel advance in the application of methods of assessing normal and abnormal cardio-respiratory physiology. The thoracic surgeon called upon to extend his indications for operation to patients gravely disabled by serious congenital and acquired defects with their attendant aberrations of physiology must have at his disposal facilities for the accurate assessment of the degree of abnormality and its possible response to operative treatment. Such procedures as cardio-angiography, cardiac catheterization, blood gas analysis, and broncho-spirometry for the measurement of differential lung function must become as readily available as bronchoscopy and tomography are to-day. No thoracic unit will be complete without a fully equipped physiological laboratory. (Fig. 8.)

PLATE V

[*Photograph by Godman*

Macrocheilia before operation.

A CASE OF MACROCHEILIA

BY

D. C. Bodenham, M.B., F.R.C.S.

Mr. B. age 42 years. Eight years ago the patient underwent an operation for extensive removal of bilateral tuberculous glands of neck. This was followed by temporary oedema of the face and lips, and led to a lip sucking habit which persisted until recently.

In August, 1947, the patient was admitted to a medical ward for treatment of a gastric ulcer. At this time the continued sucking had led to enormous enlargement of the lips and not till then did he ask if anything could be done to improve his condition. The lips showed enormous hypertrophy, particularly of that part which lay within the mouth. Lymphatic drainage through the neck now appeared to be adequate. There was no facial oedema.

Operation. A wedge of mucosa and hypertrophied submucosal tissue was removed by intra-oral incision extending horizontally across the whole width of the lower lip. After the correct volume of tissue had been excised, the defect was closed. The same procedure was carried out in the upper lip. This reduction in size removed the stimulus to lip sucking and six months later the result is very satisfactory. I am grateful to Dr. R. C. Clarke for referring the case for treatment and to Mr. G. M. FitzGibbon for allowing me to treat the case.

STUDIES OF THE RENAL CIRCULATION.*

BY

JOSEP TRUETA, M.D., A. E. BARCLAY, D.M., K. J. FRANKLIN, D.M.
and MARJORIE M. L. PRICHARD, M.A.

A REVIEW

IN 1942 Professor Josep Trueta discovered that prolonged constriction of a limb could cause persistent spasm of its main arteries ; and not only of the main arteries of the constricted limb but also of arteries proximal to the level of the constriction. Furthermore, it could cause a reflex spasm of the arteries of the opposite limb (thigh). He was at that time investigating the " crush syndrome " and its resultant anuria. Continuing his researches, he studied the effect of constriction of a lower limb upon the abdominal and in particular the renal vessels. In order to ensure meticulous accuracy he gathered together a team, consisting of Dr. A. E. Barclay, radiologist, Dr. K. J. Franklin, physiologist, Miss M. N. L. Prichard and Dr. P. M. Daniel, microscopic anatomist. With this team the physiological data collected from radiological studies were integrated with visual observations on the circulation of the kidney and with the relevant anatomical findings. A technique of angiography was developed in which by injection of thorotrast into the jugular vein of rabbits the abdominal vessels could be radiographically demonstrated without opening the abdomen. By cineradiography the time taken by the contrast medium to reach the renal artery and vein respectively was determined. The calibre of the vessels could also be measured. Having established the technique, a series of tourniquet experiments was made. These revealed that a remarkable constriction of the renal artery might occur in anaesthetized rabbits after a tourniquet had been applied to one thigh. Further experiments showed a similar constriction of the renal artery after stimulation of the central end of a divided sciatic nerve ; or in an even more marked degree after splanchnic nerve stimulation. An unexpected observation was made in the course of these experiments, namely that after the application of a tourniquet the intra-renal circuit-time might be noticeably reduced. This gave rise to a suspicion that a short-circuiting of the blood flow might occur in the rabbit's kidney.

Next, the intra-renal vascular pattern was studied in order to discover the actual pathway used when this short-circuiting occurred. From injection experiments it appeared that :—

1. In the normal animal the cortical vessels receive the greater

*From the Nuffield Institute for Medical Research, Oxford. Pp. xiii 187. 83 Illustrations. Price 25/-. Oxford : Blackwell Scientific Publications, 1947.

part of the renal blood supply, whilst those of the medulla receive a noticeably smaller part;

2. In the stimulated animal the vessels of the medulla receive by far the greater part of the blood supply; whilst those of the cortex, excepting the vessels in its deepest zone, receive virtually none;

3. The vessels of the medulla, carrying in the normal animal a relatively small part and in the stimulated animal the bulk of the total intra-renal blood-flow, were apparently the same in each case, namely, the vasa recta.

From the examination of injected kidneys it was seen that the glomeruli of the kidneys are of two kinds, varying with their position in the cortex. The glomeruli in the deepest zone of the cortex are larger than the glomeruli which lie nearer the periphery. Moreover, the efferent arteriole from the peripheral glomerulus is smaller than the afferent arteriole to the same glomerulus: whereas the efferent arteriole from the deeper-seated (or juxta-medullary) glomerulus is often nearly as large as the afferent arteriole to that glomerulus. These juxta-medullary glomeruli, lying in the deepest zone of the cortex, are distinguished by an efferent vessel of large calibre, which passes into the medulla to divide into the vasa recta. The cortical glomeruli have an efferent vessel of small calibre which breaks up to form part of the cortical intra-tubular capillary network. Some of these cortical glomeruli lie in all zones of the cortex, including the deepest or juxta-medullary zone. So the difference is one of structure not merely of situation.

Thus Trueta and his co-workers conclude that the vasa recta provide a pathway of considerable capacity, which makes it possible for the blood to pass from the arcuate and proximal paths of the interlobular arteries, via the juxta-medullary glomeruli, to the corresponding veins without traversing a capillary network. They have demonstrated that the kidney has two potential circulations. Blood may pass either almost exclusively through one or other of two pathways, or to a varying degree through both. The circulation associated with the cortical glomeruli is the greater circulation: that associated with the juxta-medullary glomeruli is the lesser.

Another significant difference was noted by Peter (in 1909)—that there are two types of nephron: one with a long and the other with a short loop of Henle. The tubule with the long loop of Henle arises from a juxta-medullary glomerulus, situated in the deepest part of the cortex: and that with the short loop arises from a cortical glomerulus lying in the superficial part of the cortex. The most striking feature in the different tubules is that the greater part of the difference in their length lies in variations in the length of the thin segment of the loop of Henle. This segment is longest in tubules arising from juxta-medullary glomeruli. The vessels which constitute the medullary by-pass are those associated with the juxta-medullary glomeruli.

There was ample evidence that the circulation through the cortex could be either diminished, or even, in some circumstances, totally arrested, while a circulation continued through the medulla. In ordinary circumstances the greater part of the blood circulates through the cortex

and the majority of the important functional elements of the kidney are situated there : so that any diversion of the circulating blood away from this part of the kidney is of profound significance.

We cannot, in this review, follow out the various conjectures and speculations upon which the authors venture. It is to be hoped that their researches will continue. So far, what has been ascertained regarding the dual circulation within the kidney is of vital importance in clinical medicine.

Rightly may Professor Trueta say that it has been of great good fortune that the Nuffield Institute for Medical Research, Oxford, holds the door open to clinicians with problems to solve. We cannot praise too highly the illustrations in this volume, nor the pains taking work that made the experiments and the specimens resulting from them possible. One is tempted to think that this discovery and explanation of the dual circulation in the kidney is one that will rank with Bell's discovery of the functions of the anterior and posterior spinal nerve roots.

Alfred, the Zoo Gorilla

ALFRED came to the Zoo in September, 1930. He was then thought to be two years old on account of his size, and such evidence as was obtained. As no gorilla had been kept in captivity in England for long, plans were made for his nurture. They consisted of:

1. *Diet.*—This was a difficulty. The normal food for a gorilla is the tops of bamboo shoots and wild celery, which means an enormous amount of roughage: a male gorilla is said to pass 1 cwt. of faeces a day. The Zoo diet arranged for him was milk, special wholemeal bread, and bananas (he was having forty-eight a day at the outbreak of war); and when bananas were no longer obtainable they were replaced by potatoes, lightly boiled in their skins. He also ate such fruit and vegetables as were in season. This was quite successful.

2. *Avoidance of human droplet, and fly-borne infections.* This was done by the construction of a glass screen inside the house and the removal of the barrier to 12 ft. from the outside cage. A fly-proof pantry was built. The keeper fed him by hand, and no food was left about.

3. *Fresh Air and Vitamins.*—Mountain gorillas come from the Kivu Mountains, which are 12,000 ft. in height, on the Equator. It was realized that he was probably used to very cold nights, so he was kept in the fresh air summer and winter, and slept in a very moderately heated house. With such black skin as he had, it was obvious that the sunlight of Bristol could not penetrate it, so he was given fifteen drops of radiostoleum daily.

DEVELOPMENT.—On arrival he weighed 25 lb. He was 45 lb. at the end of the first year and 90 lb. at the end of the second. He was too strong to weigh after that. When he was full-grown, a weighing device was put in his cage; this was difficult to read, but he was thought to be about 350 lb. When he came, the upper central incisors were missing, and these permanent teeth were cut at the age of six. In 1939, at ten years of age, he developed the pad of fibrous tissue on the head—a male secondary sexual characteristic—and it was inferred that puberty started about this time. The large supraorbital ridges developed at the same time as the tuft on the head, but took longer to reach full development. He did not seem to grow or develop after attaining the age of fourteen years.

The external genitals of the male gorilla are remarkably unobtrusive; a fact which has led to mistaking males for females in the past. Alfred's penis was only seen once when young. It was then about 3 cm. long when erect and the thickness of a slate pencil. No further observation could be made in life and the remark of a keeper who had been with him for fifteen years to the writer, who called to see the

corpse soon after death : " He was a male, sir, after all," is illuminating. Examined after death the penis was 8 cm. long with a 3 cm. protrusion and 1.5 cm. in diameter. The scrotum was very shallow ; the gorilla, like many other primates, is able to withdraw his testicles well up under the skin of the abdomen in moments of danger and activity. The testicles weighed 15 gm.

ILLNESSES.—At the age of four, when there was a whooping-cough epidemic in Bristol, he undoubtedly caught it. He would cough hard and often for two or three minutes at a time, but he rapidly recovered. He had never coughed before, nor since, until his final illness. An interesting side-line on this is that droplet infection from whooping-cough carries 12 ft. in the open air. In the summer of 1942 he became very heavy and inactive, and on going into his diet it was found that he was having 12,000 calories a day. This was cut down to 7,000 ; he then became less obese and more healthy and active. In the winter of 1944 he became rather sluggish, fatter, off his food, and his hair came out. Also he suddenly seemed to feel the cold and insisted upon covering himself with sacks. Thyroid deficiency was diagnosed, and thyroid, gr. v., were given him daily. In six weeks he was quite normal, and the thyroid was cut down to gr. ii a day ; this dose was continued for the rest of his life.

At the post-mortem the thyroid gland weighed 18 gm. against an average human weight of 30 gm.—somewhat variable. The whole gland showed considerable fibrosis, with very little functioning gland tissue left.

Last October (1947) he became thin and inactive, with a dry cough. Generalized tuberculosis was diagnosed, but never proved bacteriologically ; he died from this disease in an advanced state. The source of infection was probably carried by keeper's boots from the slaughter-house, where many tuberculous cows have been slaughtered of late. After death he weighed only 224 lb. It was then possible to measure him—his standing height was 5 ft. 11 in. and his arm span was 9ft. 6 in. The skin will be set up by Rowland Ward for the Museum, and the body is preserved in the Anatomy Department for anatomical research.

R. C. CLARKE

Reviews of Books

Medical Annual, 1947. Edited by Sir HENRY TIDY, K.B.E., M.D., F.R.C.P., and A. RENDLE SHORT, M.D., B.S., B.Sc., F.R.C.S. Pp. 464. Illustrated. Bristol: John Wright & Sons Ltd. 1947. Price 25s.—This work has been previously referred to as the "favourite compendium of the English-speaking medical world," and the present edition is indeed a worthy successor to all that has gone before. Helpful articles and excerpts on every branch of medicine and surgery are written clearly and succinctly by recognized authorities. We can mention only a few items from its wide range: prostatectomy; pulmonary embolism; testing the viability of gut by fluorescin; tracer substances; vital statistics; vitamins and nutrition; prophylactic immunization against phthisis; modern treatment of thyroid dysfunction; epidemic thrombo-phlebitis; penicillin in syphilis; streptomycin; acute rheumatism in children; infantile paralysis; disc herniations; the surgical treatment of hyper-tension; histamine antagonists; the coronary thrombosis; the rhesus factor; and many other equally interesting subjects. The reader has only to dip into this book to realize that it is a masterly exposition of modern medicine and surgery, and that the *Medical Annual* has in fact become an institution in itself.

Sex Fulfilment in Married Women. By HELENA WRIGHT, M.B., B.S. Pp. 96. London: Williams & Norgate Ltd. 1947. Price 5s.—This little book is a sequel to the author's *Sex Factor in Marriage* after sixteen years of further experience. It is a melancholy fact that, although completely happy and harmonious marriage is very difficult without full physical satisfaction of both partners, many if not most women never experience such complete satisfaction or are even aware of what an orgasm is. This is largely due to tradition and the sexual tabu which is imposed upon and readily accepted by women in general. Sex education as at present understood as the dissemination of knowledge of the "facts of life" is better than ignorance, but (at least so far as women are concerned) does not advance the situation very far. Too many people of both sexes assume that because the man achieves orgasm by friction of the penis in the vagina, the woman will or should achieve orgasm by friction of the vagina. This is not so, for at first such friction induces relatively little sensation. The homologue of the glans penis is the clitoris and it is here that the concentration of sensory nerve endings are located and it is by stimulation of this organ that the woman can achieve orgasm. Gradually the vaginal entrance and wall can be educated and conditioned so that coincident orgasm can be obtained. The author advises women to discover for themselves the correct rhythm of stimulation of the clitoris, and to achieve orgasm by digital manipulation and then to instruct their husbands to produce orgasm for them. At first coincidental orgasm cannot be expected,

but later with conditioning of the vagina this may be achieved. If orgasm capacity is necessary for full happiness and fulfilment in married life for the woman (and there is much evidence that this is so) then we can recommend this book as a clear, concise and practical technical guide to this end.

Conduct of Life Assurance Examinations. By E. M. BROCKBANK, M.B.E., M.D., F.R.C.P. Second Edition. Pp. 176. London: H. K. Lewis & Co. Ltd. 1947. Price 12s. 6d.—The object of this book is to present in succinct form the general principles upon which Life Assurance Examinations should be carried out, and to provide a guide to the effect on expectation of life of the various disabilities which may be found. The tables showing the experience of American and British Companies in the various types of case are valuable. Here one may find, for instance, the effect upon longevity of obesity, of cardiac disorder and many other abnormalities. The author certainly has a very extensive knowledge of his subject, and his book provides in readily digested form a good deal of valuable information.

Practical Food Inspection: Vol. I. By C. R. A. MARTIN. Third Edition. Pp. viii., 316. Illustrated. London: H. K. Lewis & Co. Ltd. 1947. Price 18s.—The third edition of this already popular book will be welcomed by everyone concerned with the practical administration of food inspection. The author has confined the scope of the book to matters relating to cattle, sheep and pigs. The subjects dealt with embrace all phases of meat inspection such as physiology, comparative anatomy, ante- and post-mortem inspection, systems of meat inspection, slaughtering and dressing of animals, and the recognition of conditions physiological, pathological and parasitic. The book has been carefully indexed and incorporates a useful glossary of terms. The many illustrations have been carefully and meticulously drawn. The information contained in the book is up to date, accurate and of a very practical nature. It is pleasing for the simplicity of its language and the general presentation of material, features which will appeal to students in particular who so often read without comprehension. The author has purposely avoided superfluous detail and has concentrated on giving condensed, thorough, complete data on each subject dealt with.

Nursing of Tuberculosis. By O. V. BUXTON, S.R.N., and P. M. M. MACKAY, S.R.M.N. Pp. 124. Illustrated. Bristol: John Wright & Sons Ltd. 1947. Price 7s. 6d.—This book is written expressly for nurses engaged in the nursing of tuberculous patients. The title is perhaps unfortunate, as one expects from it actual nursing procedure in considerable detail on all points peculiar to tuberculosis nursing, whereas the book, in fact, is split into the orthodox sections, aetiology, bacillus, anatomy, symptoms and so on. Nursing procedure is, of course, included, but in somewhat scattered doses. A foreword by Dr. Trail states that "the book should be most useful to all Trained and Assistant Nurses who intend to take the certificate of the Tuberculosis Association." The diagrams are mediocre. Figure 1 with its captions does

not conform to the written description in the text, and Figure 6 shows a rather unusual chest, with a pair of ribs missing and a diaphragm without visible associations with the thorax. Figure 8 is inaccurately labelled. Spontaneous pneumothorax receives no mention under the heading "Treatment of pulmonary symptoms"; it is the one real emergency in pulmonary tuberculosis. Later, in describing the treatment of the condition, the nurse, though expected to introduce a needle into the chest, gets no clear instructions into which side of the chest this should be done. It is stated that the early case is often difficult to diagnose except by radiography. Streptomycin is not mentioned, neither is calciferol nor the use of face masks in prevention. The use of pure lysol or pure carbolic in disinfection of flasks is dangerous to the nurse, and the recommended use of butter, eggs, milk and cream, though medically sound, savours of bygone days in this era of rationing. It would, however, be unfair to the authors to give only destructive criticism; the book contains a fund of valuable information, and a useful chapter on the psychological aspects is a very welcome addition.

Editorial Notes

The Sheriff of Bristol.

MR. HUBERT CHITTY, M.S., F.R.C.S., is the third ex-President of the Bristol Medico-Chirurgical Society to hold the office of Sheriff of Bristol and we are glad that he has the time and the inclination to undertake this responsibility. He has already shown with what dignity and energy he discharges his duties. His medical forerunners have been Mr. F. Richardson Cross who was Sheriff in 1898 and President of this Society in 1891–92, Dr. W. Kenneth Wills, Sheriff in 1932–33, President of the Society in 1927–28. Mr. Chitty accepted the Shrievalty in November last immediately after vacating the Presidential Chair, and retiring from active hospital work. Apparently, the Navy is a good training ground for Sheriffs of Bristol, for both Dr. Kenneth Wills and Mr. Chitty served as Navy Surgeons in the 1914–18 war.

* * * * *

Swiney Prize for a work on Medical Jurisprudence.

THE Council of the Royal Society of Arts give notice that the next award of the Swiney Prize will be made in January, 1949, the one-hundred-and-fifth anniversary of the testator's death. Dr. Swiney died in 1844, and in his will he left a sum of money to the Royal Society of Arts for the purpose of presenting a prize, on every fifth

anniversary of his death, to the author of the best published work on Jurisprudence. The prize is a cup, in normal times of the value of £100, but on this occasion of the value of £150, and money to the value of £100.

The award is made by a joint Committee of the Royal Society of Arts and the Royal College of Physicians, which appoints special adjudicators.

The prize is offered alternately for Medical and General Jurisprudence, but if at any time the Committee is unable to find a work of sufficient merit in the class whose turn it is to receive the award, it is at liberty to recommend a book belonging to the other class. On the last occasion of the award (1944) the prize was awarded for General Jurisprudence. It will, therefore, be offered on the present occasion for Medical Jurisprudence.

Any person desiring to submit a work in competition, or to recommend any work for the consideration of the Judges, should send it to the Secretary of the Society, John Adam Street, Adelphi, London, W.C.2, not later than November 30th, 1948.

Editor's Report

IN the Editorial Report last year it was pointed out to the Society that the increased cost of printing would add considerably to the cost of producing the *Journal*. This year it is possible to say what the charges for the normal four issues have been. The details are as follows :—

		£	s.	d.	No. of Pages
No. 227.	Autumn, 1946	67	19	0	89—123
,, 228.	Winter, 1946	71	16	1	125—161
,, 229.	Spring, 1947	90	5	4	1—30
,, 230.	Summer, 1947	57	13	1	31—60
		£287	13	6	

In the spring number four original papers were published as well as the list of subscribers and the index, but the number of pages was not increased.

The setting up of the Subscribers' List was the main extra expense.

It has been difficult to compare the cost of producing the *Journal* with that during the few years before the war because the whole of the *Journal* account books have unfortunately been lost.

I have, however, found a statement in the Editorial Secretary's Report of 1898 which is interesting. In that year the *Journal* receipts were £224 16s. 11d., and £206 17s. 10d. was spent, leaving a balance of £17 19s. 1d.

From the Secretary's Report for 1898 it appears that Subscriptions to the Society amounted to £184 16s. 0d., the largest amount ever received.

The cost of production of the *Journal* during the war years was as follows :—

	£	s.	d.
Autumn, 1939 } Summer, 1940 }	181	2	3
Winter, 1940 } Spring, 1941 }	123	12	3
Autumn, 1941 } Spring, 1942 }	152	14	5
1942	48	0	9
1943	90	3	7
1944	91	16	9
1945	171	16	11
Spring, 1946 } Summer, 1946 }	171	10	3
	£1030	17	2

From these figures it will be seen that the annual cost of the *Journal* to the Society did not increase during the war years.

BRISTOL MEDICO-CHIRURGICAL SOCIETY

INCOME AND EXPENDITURE ACCOUNT for the year ended 30th September, 194

EXPENDITURE	£	s.	d.	£	s.	d.
To Subscriptions to *Medico-Chirurgical Journal* handed over (305 members at 16s. each)				244	0	0
,, Past subscriptions due to *Medico-Chirurgical Journal* (to be approved)				84	13	11
,, Past subscriptions due to Medical Library				25	0	0
,, Librarian, Honorarium				15	0	0
,, Secretary				10	0	0
,, Audit Fee				5	5	0
,, Printing and Stationery				22	4	6
,, Lewis's Medical and Scientific Library				6	7	6
,, Catering (8 times at £11 5s. a time) ..	£ 90	s. 0	d. 0			
,, Other Expenses of Meetings	7	7	0			
,, Postages and Sundries	23	9	0			
				120	16	0
				£533	6	11

INCOME	£
By Members' Subscriptions	325
,, Interest on Bank Deposit Account	
,, Interest on £500 4 per cent. Consolidated Stock, less Tax ..	11
,, Deficiency for the Year ..	196
	£533

BALANCE SHEET as at 30th September, 1947

LIABILITIES	£	s.	d.	£	s.	d.
Sundry Creditors (Auditors)				5	5	0
Accumulated Fund as at 30th Sept., 1946 ..	837	8	2			
Less Deficiency for the year	196	12	3			
				640	15	11
				£646	0	11

ASSETS	£	s.	d.	£
Cash at Bank—				
Current Account ..	8	13	7	
Deposit Account ..	90	14	4	
				99
£500 4 per cent. Consolidated Stock at cost				437
Arrears of Subscriptions				109
				£646

Audited and found correct,
H. E. KEELER,
Chartered Accountant
Auditor.

16–18 CLARE STREET, BRISTOL 1.
October, 1947.

Obituaries

THOMAS CARWARDINE, M.S., F.R.C.S.

It was with great regret that we heard of the death of Thomas Carwardine on December 19th, 1947, at the age of eighty-two. He had had a long and distinguished association with the Bristol Royal Infirmary, where he was appointed House Surgeon and Senior Resident Officer on May 14th, 1895. Two years later, he became Assistant Surgeon on the death of Mr. Greig Smith, and Surgeon in January, 1906. He retired on reaching the age limit in 1926, and was Consulting Surgeon up to the time of his death.

His academic career was brilliant. After studying at University College, London, he entered the Middlesex Hospital. In the University of London he carried off the Gold Medal in Anatomy, in Surgery and in Diseases of Women.

He obtained the M.S. (London) and the F.R.C.S. (England) in 1894.

Carwardine was a fine operator, his anatomical knowledge was exact and his precision in handling his instruments was a delight to watch. He brought to the practice of Surgery the mind and hand of an artist. He drew excellently with pen or pencil and had a flair for decorative design. He designed several instruments, notably intestinal clamps, and in his student days a saccharometer for estimating sugar in the urine. He used to explain that as a clinical clerk, his chief admitted so many diabetics to his wards and required daily estimations of their glycosuria that he was compelled to invent a labour-saving instrument. The result is Carwardine's Saccharometer, still sold by the instrument makers.

He was President of the Bristol Medico-Chirurgical Society in 1925–26 and took as the subject of his Presidential address "Continuity and Change," in which he dealt with the then new discoveries of the instability of the atom and the continuity of life. He was not an active member of committees. At Faculty Meetings he was quiet, non-controversial but capable of talking sense at all times. In his younger days he had considerable taste for music and sang in Choral Societies. Photography was another of his interests.

His publications were not numerous and for the most part they appeared in this *Journal*. One on "Pericolitis" contained some admirable illustrations from his pen. In 1900 he published his only book, *Operative and Practical Surgery*.

In 1911 he married Professor Walker Hall's only child, May, who survives him and to whom we offer our deep sympathy.

C. A. MOORE, M.S., F.R.C.S.

The recent death of Mr. C. A. Moore on 16th March, 1948, after a long illness, removes an honoured and respected name from the ranks of the medical profession of this city. He was educated at Malvern, and became a student at Bristol University College in 1897.

Moore early showed promise of more than average ability, and he took the "primary fellowship" before commencing his clinical work at the General Hospital. From there he went to the London Hospital for a time, qualifying in 1903. He then did house appointments at the Liverpool Stanley Hospital and the Union Hospital, Sheffield, finally becoming S.R.O. at the Bristol General Hospital in 1908. He was appointed assistant surgeon in 1910, and during the 1914–18 war was in charge of a surgical division at 56 General Hospital, France. In the recent war he was regional advisor in surgery to the Ministry of Health. Moore was due to retire in 1940, but willingly stayed on at the Bristol Royal Hospital and it was during this period that prolonged overwork brought on the illness from which he died. He was a first-rate surgeon, and was noted in his theatre work for punctuality and speed. Showing always a keen sense of humour he had perhaps sometimes a mordant wit, but his popularity with students was evident by the large number that became his dressers.

Clifford Moore had other interests outside his profession. He had a great love for good music, he was enthusiastic over beautiful scenery, a taste which he gratified by many visits to Switzerland and North Wales. Bird-life was another of his interests and, in his early days, he was a keen photographer.

He will long be remembered both with affection and respect by his colleagues, and we tender our very sincere sympathy to his wife, a former theatre sister, and his family.

Meetings of Societies

Bristol Medico-Chirurgical Society

THE Annual General Meeting was held at the University on Wednesday, October 8th, 1947. Mr. Chitty introduced the new President, Dr. T. Milling, who gave his inaugural address on **"The Life of Dr. Jenner"** (p. 1). The Officers and Committee for 1947–48 (p. 33) were elected.

The Secretary's Report was adopted: 66 new members were elected, bringing the membership up to 310. A tribute was paid to deceased members, particularly Drs. Russell Cooper, Herapath and Bryan Adams. The work of the past session was reviewed.

The Treasurer's Report was received and approved. The question arose whether the Society could continue to work with the reduced subscription, adopted as a temporary measure in 1936, and it was proposed (and confirmed at the November meeting) that the annual subscription should again be one and a half guineas, as formerly. The future of the *Journal* was also discussed, and it was decided (November, confirmed December) that the subscription should be 16s. annually. The Secretary reminded members that the Library was open on Thursdays until 10.0 p.m.

The Editor's Report (p. 24) was read and adopted. The gist of this

was embodied in the Editorial Note of our Autumn, 1947, issue (p. 85). The Editor reminded members that the apparently large accumulation at the end of 1946 was deceptive, since there was a considerable sum due to the *Journal* account for members' subscriptions which had not been paid over. Also the payments for 1946–47 included *six* issues of the *Journal* (four for 1946 and two for 1947) instead of the usual four. These expenses were due to overtaking arrears caused by wartime difficulties, and would not be recurrent.

The second meeting of the Society was held on November 12th. Dr. Coralie Rendle Short gave an account of her experiences, entitled **"Bullets and Babies in China,"** which we hope to publish.

The third meeting was held on December 10th at the University: a clinical meeting.

The fourth meeting was held on January 14th, 1948. Dr. Campbell described **"Recent Work on Disseminated Sclerosis,"** with especial reference to such trace elements as lead and copper, to the geographic distribution and to the possibility of infection.

The fifth meeting was held on February 18th, when Professor W. W. D. Thomson, of Belfast, gave a description of **"Cancer of the Bronchus,"** illustrated by numerous lantern slides.

The Medical Library of the University of Bristol

WITH WHICH IS INCORPORATED

The Library of the Bristol Medico-Chirurgical Society

The following donations have been received since the publication of the list in the last issue.

Association of American Physicians (1)	1 volume.
Michell Clarke Fund (2)	12 volumes.
Middlesex Hospital Medical School (3)	1 volume.
Professor A. V. Neale (4)	13 volumes.
Roche Products Ltd. (5)	1 volume.
J. E. Shaw Fund (6)	1 volume.
University of Texas (7)	1 volume.
Wellcome Historical Medical Museum (8)	2 volumes.

Unbound periodicals have also been received from the British Medical Association, Professor T. F. Hewer, Professor R. Milnes Walker and Messrs. John Wright & Sons Ltd.

THE ONE HUNDRED AND EIGHTY-SEVENTH LIST OF BOOKS.

The figures in round brackets refer to the figures after the names of the donors. The books to which no such figures have been attached have either been bought from the Library Fund or received through the *Journal*.

Adams, R. C.	*Intravenous Anaesthesia*			1944
Barell, E. C.	*Jubilee Volume*		(5)	1946
Beaumont, G. E.	*Medicine*	5th Ed.	(2)	1948
Berkeley, Sir C., and Bonney, V.	*Text-book of Gynaecological Surgery*	5th Ed.		1947
Buxton, O. V., and Mackay, P. M. M.	*The Nursing of Tuberculosis*			1947
Cameron, A. T.	*Text-book of Biochemistry*	6th Ed.		1945
Carling, Sir E. R., and Ross, J. P.	*British Surgical Practice*	Vol. 2	(6)	1948
Cassidy, Sir M.	*Coronary Disease—Harveian Oration*, 1946		(4)	1946
Catalogue of Medical Films, compiled by the Royal Society of Medicine and the Scientific Film Association				1948
Cecil, R. L. (Ed.)	*Text-book of Medicine*	7th Ed.		1947
Collier, H. E.	*Outlines of Industrial Medical Practice*		(4)	1940
Comrie, J. D.	*History of Scottish Medicine*	2 vols.	(8)	1932
Conel, J. L.	*Post-natal Development of Human Cerebral Cortex* Vol. 3—*Cortex of Three-month Infant*		(2)	1947
Coope, R.	*Diseases of the Chest*	2nd Ed.	(2)	1948
Daley, R., and Miller, H. G. (Eds.)	*Progress in Clinical Medicine*		(2)	1948
De Lee, J. B., and Greenhill, J. P.	*Principles and Practice of Obstetrics*	9th Ed.	(2)	1947
Donaldson, J. K.	*Surgical Disorders of the Chest*	2nd Ed.		1947
Drummond, Sir J.	*The Nutritive Value of Bread* (*Sanderson Wells Lecture*)		(3)	1947
Engel, S.	*The Child's Lung*			1947
Eyre, H.	*An Account of the Mineral Waters of Spa*			1733
Fairbairn, J. S.	*Gynaecology with Obstetrics*		(4)	1924
Ford, E. B.	*Genetics for Medical Students*	3rd Ed.	(2)	1948
French, J.	*The Yorkshire Spaw, or a Treatise of Four Famous Medicinal Wells*			1652
Gamble, J. L.	*Chemical Anatomy, Physiology and Pathology of Extracellular Fluid*			1947
Gates, R. R.	*Human Genetics*	2 vols.	(2)	1946
Gilmour, S.	*Tuberculosis in the West Indies*			1947
Glasser, O.	*Medical Physics*			1947
Goldzieher, M. A.	*The Adrenal Glands in Health and Disease*			1946
Gordon, R. G.	*Abnormal Behaviour*		(4)	1946
Gould, Sir A. P.	*Elements of Surgical Diagnosis*	9th Ed.		1947
Harvey, W. C., and Hill, H.	*Milk Products*	2nd Ed.		1948
Herrick, A. D.	*New Drugs*			1946
Hill, A. B.	*Principles of Medical Statistics*	4th Ed.		1948
Himsworth, H. P.	*Lectures on the Liver and its Diseases*			1947
Jackson, C., and Jackson, C. L.	*Diseases of the Nose, Throat and Ear*			1946
Jameson, T.	*A Treatise on Cheltenham Waters*	3rd Ed.		1814
Jenkins, W. D.	*Dermatoses Among Gas and Tar Workers*			1948
Jones, J.	*The Bathes of Bathes Ayde*			1572
Jordan, E. O.	*Food Poisoning*		(4)	1917
Katz, L. N.	*Electrocardiography*		(2)	1946
Leake, C. D.	*Letheon—the Cadenced Story of Anesthesia*		(7)	1947

Lewis, Sir T.	*Clinical Electrocardiography*	6th Ed. (4)	1937
Lickley, J. D.	*An Introduction to Gastro-enterology*		1947
MacKenna, R. M. B. (Ed.)	*Modern Trends in Dermatology*		1948
Martin, C. R. A.	*Practical Food Inspection*	2 vols. 3rd Ed.	1947
May, H.	*Reconstructive and Reparative Surgery*		1947
Miller, E. (Ed.)	*Neuroses in War*	(4)	1940
Miller, H. C.	*Insomnia*	(4)	1930
Novak, E.	*Gynecological and Obstetrical Pathology*	2nd Ed. (2)	1947
Ogilvie, R. F.	*Pathological Histology*	2nd Ed. (4)	1943
Pannett, C. A.	*Surgery*	2nd Ed.	1947
Peter, J.	*A Treatise of Lewisham Wells in Kent*		1680
Ranson, S. W.	*The Anatomy of the Nervous System*	8th Ed. (2)	1947
Reynell, C.	*A Sermon Preached before the Contributors to the Bristol Infirmary*		1738
Rolleston, Sir H. D., and Moncrieff, A. A. (Eds.)	*Industrial Medicine*	(4)	1944
Sawyer, J.	*Notes on Medical Education*	(4)	1889
Selye, H.	*Text-book of Endocrinology*		1947
Sherrington, Sir C.	*The Endeavours of Jean Fernel*		1946
Stewart, J. P.	*Intracranial Tumours*	(4)	1927
Stone, K.	*Diseases of the Joints and Rheumatism*		1947
Treasury of Human Inheritance, Vol. 4, Parts 3, 4, 5			1939–47
Tredgold, A. F.	*A Text-book of Mental Deficiency*	7th Ed.	1947
Vaquez, H.	*Diseases of the Heart*	(4)	1924
Weiss, E., and English, O. S.	*Psychosomatic Medicine*	(2)	1947
Willis, R. A.	*Pathology of Tumours*		1948
Wright, H.	*Sex Fulfilment in Married Women*		1947

TRANSACTIONS, REPORTS, JOURNALS, ETC.

Annual Report of the Smithsonian Institution, 1946		1947
Hospitals Yearbook, 1947		1947
Medical Annual, 1947		1947
Quarterly Cumulative Index Medicus. Vol. 40. July–December, 1946		1947
Transactions of the Association of American Physicians. Vol. 60	(1)	1947
Transactions of the Medical Society of London. Vol. 64		1946
Yearbook of Dermatology and Syphilology, 1947		1947
Yearbook of Eye, Ear, Nose and Throat, 1947		1947
Yearbook of General Medicine, 1947		1947
Yearbook of General Surgery, 1947		1947
Yearbook of Obstetrics and Gynecology, 1947		1947
Yearbook of Pediatrics, 1947		1947
Yearbook of Radiology, 1947		1947
Yearbook of Urology, 1947		1947

Publications Received

From MESSRS. JOHN WRIGHT & SONS LTD.:

The Nursing of Tuberculosis. By O. V. BUXTON, S.R.N., and P. M. MACULLOCH MACKAY, S.R.M.N. Price 7s. 6d. 1947.

British Journal of Surgery. Vol. 35, No. 139. January, 1948. Subscription 42s. per annum; Single numbers, 12s. 6d. 1948.

Dermatoses Among Gas and Tar Workers. By WILLIAM DAVID JENKINS, J.P., B.A., M.R.C.S., L.R.C.P. Price 25s. 1948.

From MESSRS. JOHN WRIGHT & SONS LTD.:

Psychiatry: A Short Treatise. By WILLIAM A. O'CONNOR, L.M.S.S.A., D.P.M. Price 35s. 1948.

Emergency Surgery. By HAMILTON BAILEY, F.R.C.S., F.A.C.S., F.I.C.S., F.R.S.E. 6th Edition. Part I. Price 21s. 1948.

Surgery of the Colon and Rectum. By Sir HUGH DEVINE, M.S., and JOHN DEVINE, M.S. Price 52s. 6d. 1948.

From MESSRS. WILLIAMS AND NORGATE LTD.:

Sex Fulfilment in Married Women. By HELENA WRIGHT, M.B., B.S. Price 5s. 1947.

From MESSRS. H. K. LEWIS & CO. LTD.:

Practical Food Inspection. By C. R. A. MARTIN. Vol. 1: *Meat Inspection.* Vol. 2: *Fish, Poultry and other Foods.* 3rd Edition. Price 36s. 1947–48.

Milk Products. By W. CLUNIE HARVEY, M.D., D.P.H., F.R.San.I., and HARRY HILL, F.R.San.I., A.M.I.S.E., F.S.I.A. 2nd Edition. Price 30s. 1948.

From OXFORD UNIVERSITY PRESS:

The Natural History of Disease. By JOHN A. RYLE, M.A., M.D., F.R.C.P. 2nd Edition. Price 22s. 6d. 1948.

The Background of Therapeutics. By J. HAROLD BURN, M.D., F.R.S. Price 22s. 6d. 1948.

Psychotherapy—Its Uses and Limitations. By D. RHODES ALLISON, M.D., M.R.C.P., and R. G. GORDON, M.D., D.Sc., F.R.C.P. Price 8s. 6d. 1948.

From MESSRS. FREDERICK MULLER LTD.:

Clinical Endocrinology and Constitutional Medicine. By A. P. CAWADIAS, O.B.E., M.D., F.R.C.P. Price 42s. 1948.

Local Medical Notes

APPOINTMENT

Professor Geoffrey Hadfield, M.D., as Sir William H. Collins Professor of Human and Comparative Pathology at the Royal College of Surgeons.

EXAMINATION RESULTS

University of Bristol.—Students of the University have recently passed the following examinations :—

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D.M.R.—*Part II*: G. R. Airth, D. Livshin, E. G. Redman, N. F. Walsh.

MIDWIFE TEACHERS' CERTIFICATE.—*Part II*: Irene M. Humphries, Sarah E. D. Stuart, Grace V. Webber.

Royal College of Surgeons.—The Jacksonian Prize for 1947 has been awarded to N. C. Tanner, M.B., Ch.B. (Brist.), F.R.C.S.

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Extracts from Journal By-laws.

4.—The *Journal* shall be delivered free to Subscribers and also to Members of the Society whose subscriptions are not in arrear.

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Books for Review and Exchange Journals should be sent to the Assistant Editor, *Bristol Medico-Chirurgical Journal*, Medical Library, The University, Bristol. Reviews should be returned with the books to Mr. W. M. CAPPER, Litfield House, Clifton Down, Bristol 8.

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